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THE TERMINOLOGY OF THE ULTIMATE VEGETATION[1]

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In considering the vegetation which becomes finally established in any given region, one finds that the present method is to designate such growth as the climax vegetation.

The use of the term climax in this connection seems to be misleading, since the word climax conveys the impression of an abundant or copious vegetation, whereas the present usage of the term refers to a final or ultimate condition, regardless of mere vegetational display. The dense shade of the ultimate forest results in an undergrowth consisting of strictly shade-tolerant plants; such a forest floor frequently presents a paucity of vegetation. It is obvious that a vegetation of this character may be less luxuriant than that found in previous stages where light permits a dense undergrowth; the climax in vegetational display may be thus attained previous to the ultimate condition. It seems that the word "ultimate" possesses many advantages over the term "climax" when used to designate the final vegetation of a region. Objection might be raised to the use of ultimate on the grounds that no one knows what the ultimate condition will be eventually; however, in an ecological sense the usage of the word is directed toward present-day ultimate conditions in much the same manner as the term climax is now generally applied.[2]

The need of a term to designate any member of the ultimate vegetation of any given region seems apparent; at the present time such a plant is usually referred to as a "climax-plant," a "member of the climax vegetation" or by other more or less similar forms of expression. As a term of convenience, the word *eschatophyte* is proposed as one applicable to any member of an ultimate vegetation. For example, in various parts of the Appalachian Mountains the Maple-Hemlock formation is always found in the ultimate vegetation; such plants may be called eschatophytes. On a large area of Canada, various species of conifers are eschatophytes. It should not be understood that the term is to be applied to the trees only; the Yew (*Taxus canadensis*) grows typically in the shade of the Hemlock and is not usually found in any of the stages previous to the ultimate vegetation. The Yew in this case is a typical eschatophyte. Growing in the shade of the so-called "climax" forests may frequently be found such typical eschatophytes as the Maidenhair Fern (*Adiantum pedatum*), Yellow Clintonia (*Clintonia borealis*), etc. Of course, the term may be modified in such a manner as "dominant eschatophyte," "relic eschatophyte," "pioneer eschatophyte," etc.; a so-called "climax" vegetation may be referred to as an eschatophytic vegetation. Thus in the eschatophytic vegetation of the Appalachian succession previously referred to, the Maple and Hemlock are dominant eschatophytes; the first Hemlocks to appear in the succession previous to the eschatophytic stage (in many instances the oak stage) were pioneer eschatophytes. In case a fire should almost exterminate the eschatophytic vegetation, but a few eschatophytes should survive and persist in the vegetation following the burn, such eschatophytes may be designated as relic eschatophytes.

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[2] In the Report of the British Association for the Advancement of Science, 1909, p. 669, Cowles states: "The author feels, in view of the increasing objection to the use of the terms 'edaphic' and 'climatic,' that it may be well to use such terms as 'proximate' and 'ultimate.' Besides, these terms explicitly imply evolution, which is not the case with the others. Stages between proximate and ultimate may be denominated approximate, mediate and penultimate."

The term is derived from two Greek words, *eschatos,* ultimate, and *phyton,* plant. For assistance in determining the correctness of derivation, acknowledgments and thanks are due to the late Dr. C. O. Harris, of the Department of Latin and Greek of the Pennsylvania State College.

The writer is fully aware of the antagonism likely to arise against any attempt to alter or add to the existing terminology. In order to ascertain if in the opinion of others there exists a real need for such a term as eschatophyte, views upon the subject have been requested from several plant ecologists. The opinions received were so encouraging that the term is proposed with some confidence and with the hope that it will satisfy a real need for a definite and technically correct term which may be applied to any plant member of the ultimate association.